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ARCHAEOLOGY OF VIRGIN ISLANDS ~
BOOY ~

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ARCHEOLOGY OF THE VIRGIN ISLANDS

BY
THEODOOR DE BOOY

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FOREWORD



HEODOOR DE BOOY, the author of this account of the archeology of the Virgin Islands of the United States, died February 18, 1919, while the memoir was in preparation for publication.

Mr de Booy, son of Vice-Admiral C. J. G. and Mary (Hobson) de Booy, was born in Hellevoetsluis, Netherlands, December 5, 1882, and was educated at the Royal Institute of Holland. In 1906 he came to the United States, becoming an American citizen ten years later; and in 1909 he married Miss Elizabeth Hamilton Smith, of Louisville, Kentucky. In company with his wife, Mr de Booy went to the Bahama islands in 1911, and during his residence there became interested in the antiquities of the Caicos group of islands, devoting much time to the exploration of their numerous caves and mounds. On

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	<p>his return to the United States, he published, in 1912, the first results of his archeological researches, in a paper entitled "Lucayan Remains on the Caicos Islands." He then determined to devote his life to archeology, and the opportunity soon presented itself when he became attached to the Heye Museum, now the Museum of the American Indian, Heye Foundation, of New York City. Mr de Booy joined the staff as field explorer for West Indian work, and sailed for the Bahamas in June, 1912, remaining there for six months. He was notably successful on this trip, among the most important objects recovered being a remarkable paddle which he discovered in a cave on Mores island. Mr de Booy's next expedition was to Jamaica, where he spent the months of January, February, and March of 1913, on this trip conducting excavations in some of the kitchen-middens found on various parts of the island. During July to October of the same year he devoted his attention to Santo Domingo, there undertaking the first systematic exploration ever made in this important and</p>
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<p>little-known field, a work which was continued in the spring of 1914. On his return to the United States he prepared a report on the results of the two expeditions, which were devoted chiefly to the exploration of certain caves in Santo Domingo and to work on the small island of Saona. In October and November of the same year he made an archeological reconnoissance of eastern Cuba, and was the first to discover the great riches of that hitherto neglected field. The year of 1915 was a busy one with Mr de Booy. The months of February to April were spent by him in exploration and excavations on the island of Margarita, Venezuela, and from May to September he was occupied in excavating in the south-eastern part of Trinidad. In 1916 he made a third trip to Santo Domingo, and in the same year visited Porto Rico and Martinique. On all of these islands he conducted archeological researches.</p> <p>Owing to the acquisition of the Danish West Indies by the United States, Mr de Booy was sent by the Museum to the islands comprising this group, where he re-</p>	
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	<p>mained from October, 1916, until February, 1917. This was the first archeological work ever done there, and he was notably successful in obtaining material and information respecting the antiquities of this region. With this expedition his field-work for the Museum came to an end. Early in 1918 he severed his connection with it, and commenced preparations for an exploration of the unknown region of the Perijá mountains in eastern Venezuela, and an investigation of the ethnology of the Motilone Indians, the savage remnant of a tribe which has always kept its country free from white settlement and exploration. This journey was made under the auspices of the American Geographical Society and the Museum of the University of Pennsylvania, of which latter institution he became a field worker for a short period. After his return from this trip Mr de Booy joined the force of the State Department Inquiry as one of its South American experts, and was still engaged in this work at the time of his death.</p> <p>Mr de Booy was an able, thorough, and industrious student of his chosen field of</p>
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<p>endeavor, and a man of attractive personality. The reports of his investigations in the West Indies, of which the present memoir is the seventh to be published by this Museum, are distinct contributions to our knowledge of the archeology of those regions. In addition he published in scientific journals numerous papers on the geography and archeology of the fields which he explored.</p> <p>GEORGE G. HEYE, <i>Director.</i></p>	
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ARCHEOLOGY OF THE VIRGIN ISLANDS

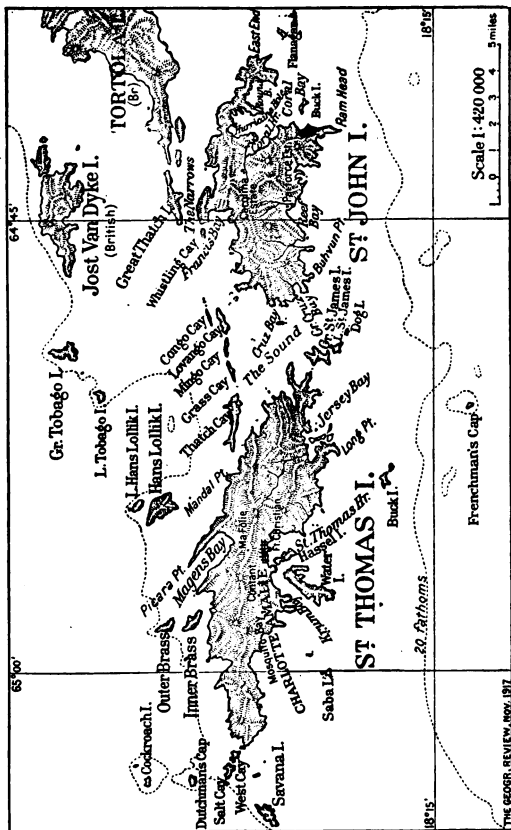
By THEODOOR DE BOOY

INTRODUCTION



THE writer was sent by the Museum of the American Indian, Heye Foundation, to the Virgin Islands of the United States for the purpose of making an extended archeological survey of St Thomas, St John, and St Croix, the three principal islands of the group. The visit to the islands extended from October, 1916, to February, 1917, during which time they were still known as the Danish West Indies, as their actual transfer to the United States was not made until March, 1917. Up to that date practically no pre-Columbian artifacts were known from St Thomas or St John, excepting a small number of stone celts and chisels; and

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	<p>while St Croix had produced a quantity of objects representing the material culture of the aborigines, these were almost entirely in the hands of private collectors and had not been described.</p> <p>After a preliminary survey of St Thomas, it was the good fortune of the writer to discover, on the Magen's Bay property of Dr P. Mortensen, King's physician of the island, evidence of the existence of a pre-Columbian village-site. Thanks are due to Dr Mortensen for his generous permission to conduct excavations on his land for the benefit of the Museum. With praiseworthy interest in the scientific institutions of Denmark, his native country, Dr Mortensen prescribed only one condition to the privileges granted, namely, that such duplicate material as might be found be given him for the National Museum at Copenhagen. The writer is likewise indebted to Mr H. MacKay, a planter of the island of St Croix, for permission to excavate on his Salt River property. To Mr MacKay may be attributed much of the</p>
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THE ISLANDS OF ST THOMAS AND ST JOHN
(Courtesy of the American Geographical Society)

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<p>success of the undertaking on St Croix which resulted in gathering numerous artifacts illustrating its archeology. In addition to these two gentlemen, the Museum and the writer express their grateful appreciation of the aid shown them in their work by the Danish officials, who manifested active interest in the excavations and were helpful in every possible way.</p> <p>EARLY INHABITANTS</p> <p>In order to make this account as comprehensive as possible, it is deemed advisable first to discuss what little is known of the Indians inhabiting the Virgin Island group when the West Indies were discovered by Spanish explorers. The literature of the subject is scant, and of this a great deal cannot be taken seriously so far as archeological and ethnological data are concerned. It must be noted that the island of St Croix is not a part of the Virgin Island group proper, being separated by a passage forty miles wide.</p>	
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	<p>During his second voyage of discovery in 1493, Columbus reached St Croix after touching at a number of the Windward islands to the southward. After St Croix, the Admiral discovered the group of islands to the northward, naming them the Virgins, in honor of St Ursula and the Eleven Thousand Virgins of the Catholic calendar. According to the Rev. John P. Knox, whose work on the history of St Thomas possesses perhaps the greatest merit of the few historical accounts of this region, Columbus, on the report of the captain of a small caravel whom he had sent to explore the group, thought the islands to be uninhabited.¹ It must be noted that Knox had no ground for making the statement that the islands were uninhabited, as the early historian from whom this author probably obtained his reference² merely informs the reader that, on arriving at the group, the larger ships kept at high sea, owing to the danger from unknown shoals and rocks, while a few of the smaller vessels cruised amongst the islands and recon-</p>
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<p>noitered forty-six of them. It was in consequence of these dangers that Columbus thought it best to leave the islands and proceed to Porto Rico, whose mountains he could see from his anchorage.</p> <p>The German historian Oldendorp mentions that the Indians were driven away from the Virgin Islands during the reign of Carlos V of Spain, about the year 1550, the Emperor having ordered them to be treated as enemies and exterminated.³ We cannot discover from what source Oldendorp derived this information, and are inclined to believe that he was writing of St Croix, not of the true Virgin Island group. It is much more likely that such inhabitants as may have dwelt on the Virgin Islands after the discovery were taken as slaves and made to work in the mines of Hispaniola after the labor supply of the latter island had become exhausted.</p> <p>The early records unanimously agree that St Croix, called <i>Agay</i> by the aborigines, was occupied by warlike tribes when it was discovered, and they com-</p>	
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	<p>ment on the ferocity and savagery of these people. These were the tribes which attempted to repel, by force of arms, the soldiers sent ashore by Columbus to explore the island.⁴ It has frequently been stated that this encounter with the Indians caused the first act of bloodshed in the New World between the <i>conquistadores</i> and the aborigines. This, however, is not true, as an encounter had already taken place during the first voyage of Columbus, in 1492, when he discovered Samana bay of the island of Hispaniola; indeed this bay was named the Bay of Arrows by the Admiral in commemoration of the encounter.⁵ It will therefore be seen that St Croix cannot lay claim to the doubtful honor of having been the scene of the first battle in the New World. During the fight between the natives of St Croix and the Spaniards, a Galician was slain by an Indian woman, and another soldier seriously wounded. Peter Martyr relates that the wounds were caused by the poisoned arrows used by the natives, and states that the poi-</p>
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<p>son oozed from the arrows when the points broke off. It is also of interest to note that the same historian relates that the St Croix Indians, who made the attack, appeared to be governed by the same woman who inflicted the wounds on the slain Spaniard and his companion.</p> <p>There are no trustworthy records of the ultimate fate of the aboriginal inhabitants of St Thomas, St Croix, and St John, for even if Oldendorp's statement referred to is founded on fact, it does not necessarily imply that the extermination of the Indians was completely effected. Nevertheless, when the Danish, Dutch, and French settlers arrived on the islands at different periods of the seventeenth century, no Indians were found to inhabit them, and the fate of the aborigines from that time onward is completely veiled.</p> <p>PRIMITIVE CULTURE — INTER-INSULAR COMMUNICATION</p> <p>As has been stated, the first investigations were carried on at Magen's bay,</p>	
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	<p>St Thomas. After these, the writer made a survey of the island of St John, and finally of St Croix. Beyond the petroglyphs at Reef bay on St John which were studied and photographed, there was no evidence of prolonged Indian occupancy of this island. A few potsherds were found on what is called "Old Oven" hill on the northern coast of St John, between Leinster bay and Smith bay, which led to the belief that this eminence had at one time been occupied by the aborigines, but in any event the occupancy must have been brief. However, the sherds found were so small that they were of little use for comparative study. The St Croix site, on the other hand, produced a large number of excellent artifacts, and, as at Magen's bay on St Thomas, extensive excavations were conducted there.</p> <p>The writer cannot agree with the statement made by Dr J. Walter Fewkes that "Santa Cruz [St Croix] and St Thomas have cultural resemblances in their antiquities to the Porto Rican or Jamaican</p>
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<p>area." ⁶ The specimens from St Croix resemble those from St Thomas so closely that one may assert that the aborigines of the two islands were of the same origin and culture. While an occasional artifact has been found on St Thomas and on St Croix that undoubtedly belongs to the Porto Rican area, the presence of a specimen of this kind, where islands are in such close proximity that their mountains loom on the horizon as landmarks for canoe travelers, could mean hardly more than that the Indians of the two islands either had intercourse with those of Porto Rico or that they waged war against the Porto Ricans and possibly carried off articles of Tainan manufacture as their spoils. Cultural resemblances, in order to be complete, must be found in pottery as well as in artifacts of stone, and no pottery object was found on either St Thomas or on St John that in any degree resembles ceramic specimens from either Porto Rico or Jamaica. While the writer personally recovered perhaps ten stone and bone objects that</p>	
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	<p>had their origin in Porto Rico, if not even in Santo Domingo or Jamaica, he found also one potsherd on St Croix that could have come only from Trinidad, it having the painted red-and-white decoration so typical of the earthenware of that southern island.</p> <p>The writer is strongly of the opinion that St Croix and St Thomas were inhabited by tribes that made extended voyages, either for trading or for warfare, practically throughout the West Indies. The finding of some of the so-called "collar-stones" proves that voyages to Porto Rico were commonly undertaken, and the presence of a grotesquely carved "swallowing-stick" of bone urges connection with Santo Domingo. That journeys to Jamaica were possibly undertaken is suggested by the finding, in a kitchen-midden on St Croix, of a cylindrical stone pendant, specimens of this kind being more typical of Jamaican culture than of that of other Antillean islands. Then again, the potsherd above mentioned tends to prove that some communication had been</p>
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<p>held with either Trinidad or the northern coast of Venezuela.</p> <p>It is hardly likely that the tribes inhabiting St Thomas and St Croix made such voyages for purposes of barter or of peaceful intercourse; it is far more likely that these natives undertook extended journeys like these in order to wage war against the more peaceful Arawak tribes of the other Antillean islands, and that the specimens recovered by our expedition were obtained by force of arms rather than through trade. Had the intercourse with the islands to the westward been of a peaceful nature, it is probable that the Indians would have adopted some of the technique of the potter's art from their neighbors. As it is, the pottery from St Thomas and St Croix, of which thousands of specimens were recovered, bears no resemblance to that from Jamaica, Porto Rico, Santo Domingo, and Cuba, in either form, technique, or design. Some slight resemblance may be suspected between the pottery of the islands and that of Trinidad; but this resem-</p>	
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	<p>blance is so remote that it is more a question of the individual opinion of the writer than of tangible proof.</p> <p>Knowing from early historians that St Croix was inhabited by warlike tribes, and finding that the pottery and other artifacts from St Thomas bear a direct resemblance to those from St Croix, it may reasonably be said that the inhabitants of St Thomas were of the same warlike and ferocious tribes.</p> <p>MAGEN'S BAY VILLAGE-SITE, ST THOMAS</p> <p>Crossing the mountain ridge which bisects the island of St Thomas, one views the bay called Magen's bay, or sometimes North Side bay, which stretches rectangularly on the northern coast of the island. Bordered on the eastern side by Picara point, a rocky peninsula that extends its enormous arm in a north-westerly direction, and on the western side by another, somewhat smaller, paralleling peninsula of similar formation, the sloping, sandy, southern shore of the bay is sheltered from all but northerly</p>
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and westerly storms (pl. 1). From the hills commanding the bay a perfect view may be had of both the northern and the southern coasts of the island, and of many of the cays and passages in the waters surrounding St Thomas. The Indian lookouts in ancient times could have given ample warning of the approach of any marauding tribes and thus enable the inhabitants to seek the shelter in the forests or to prepare themselves for attack. With a perfect sandy shore eminently suitable for beaching canoes, with soil sufficient for the cultivation of cassava and other indigenous vegetables, with a sea teeming with fish and shell-food, and with an ample supply of fresh water, the existence of the aborigines of St Thomas could have been little less than ideal. That the Indians selected Magen's bay for their village-site, in preference to even more sheltered bays on the southern coast, was due probably to the fact that their principal diet consisted of sea-food and that this was more easily obtained on the northern coast. Fur-	
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	<p>thermore, it was probably easier to procure fresh water on the northern coast of the island, considering the primitive appliances the Indians had at their disposal for making wells.</p> <p>There are today various paths leading from the shores of Magen's bay to the hills above. The largest of these paths, called the King's Road by the inhabitants of St Thomas, leads from the shores of the bay along its bordering hills to the eastward, toward a property now called Canaan. It was on this road, at a point not more than a hundred meters from the sandy shore of the bay, that the writer was so fortunate as to discover a small mound of aboriginal origin. During the first reconnoissance of the valley lying between the ridges that terminate in the two peninsulas forming the bay, a number of small potsherds were found on the surface. This led to a search of the neighborhood for mounds and other evidences of Indian occupancy. It should here be said that the valley between the two ridges is covered with small pools of</p>
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<p>fresh water during the rainy season; it is therefore likely that the Indians came to these pools for their water supply and that the sherds on the surface of the little valley were parts of such vessels as were broken while being carried to the pools.</p> <p>Careful search throughout the valley, which is covered with bush and undergrowth, was finally rewarded by the discovery of the mound above mentioned, the crest of which was not more than ten feet high and which merged into the slope of the hill against which it lay. The mound was found to be semilunar in shape, with a maximum breadth of about 75 feet and a width of about 30 feet. Its western slope was more or less bordered by the King's road, whereas the eastern slope, as before mentioned, was circumscribed by the contour of the hill. Examination of this hill showed that its summit had also been occupied by Indians, probably as a signal station. A number of small potsherds were found upon the flat crest of the height, but as it is rocky</p>	
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and without covering of deep soil, it was considered unprofitable to conduct excavations at this point.

The vegetation covering the mound was somewhat dense and consisted prin-



FIG. 1.—Destructive roots in the aboriginal mound.

cipally of genip trees (*Melococca bijuga*) of varying size, whose penetrating roots had caused more breakage of the artifacts under the surface than the weight of the soil above, and, incidentally, the



SECTION OF THE ABORIGINAL MOUND

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<p>roots made the excavation of the diluvial covering a difficult task (fig. 1).</p> <p>Directly beneath the diluvial deposit of the mound was found a layer of black earth, plentifully mixed with ashes, charcoal, and shells, and it was in this dark layer (pl. II) that most of the artifacts were encountered. Directly under this black stratum was found another, though not quite so dark, in which the same kind of débris was found as in the layer directly above it. The mound appeared to represent two different periods of aboriginal occupancy, although the objects found in the third layer did not differ materially in their types from those found in the second layer. But it may well be that after the formation of the lower, or third, layer, the village-site was abandoned for a number of years, but not for such a length of time that the earth of the deposit partook of the lighter, brown, color of the diluvial deposit, yet still long enough to have become a trifle less dark than the later deposit on top.</p> <p>As the illustration shows, the original</p>	
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	<p>sea-sand is found directly under the third layer. By digging two feet in this lowermost deposit, one reaches water, hence excavations were not conducted for more than a foot below the third layer. The depth of the strata varied, of course, with the depth of the mound. At the highest part of the mound the first layer had a depth of two feet, the second a depth of three and a half feet, the third a depth of four feet. No artifacts were found in the diluvial covering, therefore we may concern ourselves solely with layers 2, 3, and 4, the last being the sea-sand, a foot to eighteen inches in depth, in which excavations were made. As the aboriginal objects in the lower layers were not different, and as the conditions under which they were found were the same throughout, the two layers (2 and 3) may be treated as a single deposit. The illustration (pl. II) affords the means of determining the depth of the combined layers at about the highest part of the mound.</p> <p>The layer under the diluvium repre-</p>
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sents a typical West Indian kitchen-midden, or rubbish-heap, of the same kind as the one in Jamaica described by the writer in a former paper,⁷ excepting that no extensive shell layers were found.



FIG. 2.—Excavation in the aboriginal mound.

Where in the Jamaica middens one finds first a layer of diluvium, next a stratum of shells, then one of ashes, and finally the original surface of limestone marl, at Magen's bay is found first the layer of diluvium, then a layer in which ashes,

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	<p>shells, and artifacts are mixed together (representing in its entirety the two intervening layers found in Jamaica), and finally the original surface, in this instance consisting of sand instead of limestone marl. Virtually, however, there is no wide difference in the middens, and it is found that, except in a minor way, the kitchen-middens of such other West Indian islands as Cuba, Trinidad, and Santo Domingo, as were investigated, did not vary in character from those of St Thomas.</p> <p>Close examination of the component ingredients of the second and third layers of the Magen's Bay deposits revealed the existence of a somewhat indurated mass of loam and clay, plentifully mixed with ashes, charcoal, and other débris of the aboriginal household. It is regretted that none of the wooden artifacts were preservable in the humid soil, for there can be no doubt that the aborigines used a large number of such, judging from the accounts of early historians and from the few cave specimens that have been recovered from time to time.</p>
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A large variety of shells was found in the second and third layers. These have been identified as follows:

MARINE SHELLS

<i>Fasciolaria tulipa</i>	<i>Arca occidentalis</i>
<i>Strombus gigas</i>	<i>Donax denticulatus</i>
<i>Strombus accipiter</i>	<i>Modiola tulipa</i>
<i>Strombus pugilis</i>	<i>Tritonium tritonis</i>
<i>Turbo pica</i>	<i>Nerita peloronta</i>
<i>Iectarius muricatum</i>	<i>Nerita tessellata</i>
<i>Codakia orbicularis</i>	<i>Murex brevifrons</i>
<i>Cypraea exanthema</i>	<i>Murex pomum</i>
<i>Cardium serratum</i>	<i>Ostrea folium</i>
<i>Cardium muricatum</i>	<i>Mytilus hirundo</i>
<i>Pecten zigzag</i>	<i>Chama</i> sp.
<i>Pecten nodulus</i>	

LAND SHELLS

<i>Pleurodonte incerta</i>	<i>Helix bornii</i>
----------------------------	---------------------

It is impossible to say which of these shells predominated in the Magen's Bay kitchen-middens. From the fact that so many species were recovered, but that of no one of them was a large number encountered, it would seem to have been the general practice of the Indians to open the shells in the vicinity of the place where they were gathered. This may ac-

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	<p>count for the fairly heavy shell-deposits at Krum bay, on the southern coast of St Thomas, and for the fact that in these shell-deposits practically no artifacts were found.</p> <p>It should be noted that <i>Helix bornii</i> had not been known to occur on St Thomas, its nearest habitat being Porto Rico. The writer found four shells of this species in the Magen's Bay middens, and as all of these were found together and all with perforated lips, it is probable that they were gathered in Porto Rico by some adventurous Indian, who strung and carried them home.</p> <p style="text-align: center;">MAMMALS</p> <p>The writer is indebted to Dr Gerrit S. Miller, Jr.,⁸ curator of the Division of Mammals of the United States National Museum, for the identification of the bones of mammals and reptiles found in the Magen's Bay deposits. These were found to represent the following:</p> <p><i>Isolobodon portoricensis</i> Allen. Of this small mammal, now extinct in the Virgin Islands and Porto Rico, and not known to be living else-</p>
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<p>where, 92 bones were collected on St Thomas, probably representing about 30 individuals.</p> <p><i>Dasyprocta aguti</i> (Linnaeus). <i>Trichechus manatus</i> Linnaeus.</p> <p style="text-align: center;">REPTILES</p> <p><i>Cyclura mattea</i>, new species. Three bones of a probably extinct species of large lizard (iguana) were found.</p> <p><i>Chelonia mydas</i> (Linnaeus). About forty fragments of shells and limbs of turtles were found. All the more complete bones appear to be those of the green turtle.</p> <p style="text-align: center;">BIRDS</p> <p>Mr Alexander Wetmore,⁹ of the United States Biological Survey, identified the bird-bones found in the kitchen-middens of Magen's bay, finding them to belong to the following:</p> <p><i>Puffinus lherminieri</i> Lesson. Shearwater. <i>A. Estrelata</i> sp. Petrel. <i>Sula leucogastra</i> (Boddaert). Booby. <i>Fregata magnificens</i> Matthews. Man-o'-war Bird. <i>Nyctanassa violacea</i> (Linnaeus). Yellow-crowned Night Heron. <i>Gallus gallus</i> (Linnaeus). It is a source of considerable mystification how to account for the presence of these remains of a domestic fowl</p>	
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	<p>in what undoubtedly is a pre-Columbian deposit. The only logical explanation is that a rat may have carried the remains of a fowl in its burrow in later days.</p> <p><i>Nestrochis debooyi</i>, new genus and species (Family Rallidae). Limb bones of several individuals of an extinct rail were found.</p> <p><i>Anoüs stolidus</i> (Linnaeus). (?).</p> <p><i>Sterna</i> sp. Possibly of <i>Sterna anaetheta</i> (Scopoli).</p> <p style="text-align: center;">FISH</p> <p>Mr Barton A. Bean, of the United States National Museum, identified the fish-bones in the St Thomas middens as being of the following:</p> <table border="0" style="width: 100%;"> <tr> <td><i>Sphyræna</i>, Barracuda.</td><td><i>Caranx</i>, Crevallé.</td></tr> <tr> <td><i>Epinephelus</i>, Grouper.</td><td><i>Scarus</i>, Parrot Fish.</td></tr> <tr> <td><i>Diodon</i>, Porcupine Fish.</td><td><i>Tylosurus</i>, Silver Gar.</td></tr> <tr> <td><i>Balistes</i>, Trigger Fish.</td><td><i>Lutjanus</i>, Snapper.</td></tr> </table> <p>It will be noted that the food of the aborigines of St Thomas was of considerable variety. What with numerous kinds of fish, green turtle, the <i>Isolobodon</i>, all sorts of shell-fish, birds, and the flesh of the iguana, the Indians were well supplied with animal food. Their vegetal food probably comprised the num-</p>	<i>Sphyræna</i> , Barracuda.	<i>Caranx</i> , Crevallé.	<i>Epinephelus</i> , Grouper.	<i>Scarus</i> , Parrot Fish.	<i>Diodon</i> , Porcupine Fish.	<i>Tylosurus</i> , Silver Gar.	<i>Balistes</i> , Trigger Fish.	<i>Lutjanus</i> , Snapper.
<i>Sphyræna</i> , Barracuda.	<i>Caranx</i> , Crevallé.								
<i>Epinephelus</i> , Grouper.	<i>Scarus</i> , Parrot Fish.								
<i>Diodon</i> , Porcupine Fish.	<i>Tylosurus</i> , Silver Gar.								
<i>Balistes</i> , Trigger Fish.	<i>Lutjanus</i> , Snapper.								
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<p>erous indigenous fruits and the all-important cassava, which is such a constant adjunct to Indian life in the islands. Numerous fragments of cassava griddles, of the type common to the West Indies, were found in the kitchen-middens of Magen's bay.</p> <p>There was no evidence on St Thomas that the island had been densely populated; indeed, only two pre-Columbian sites were found on the island: the site at Magen's bay, and a very small one on the southern coast, on the shore of Krum bay, where somewhat extensive shell-deposits and an occasional sherd indicate that the place was at least visited by Indians. Of course, objects such as celts, chisels, axes, pestles, and mortars are found throughout the island, but discoveries of this kind do not indicate permanent occupancy of a particular locality.</p> <p>There is no way to determine the age of the Magen's Bay deposits. As will be shown, they were covered with two feet of diluvium, but no deductions as to the age of the kitchen-middens can be drawn</p>	
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	<p>from this. The depth of the diluvial deposits has been found to be governed entirely by such conditions as the nature of the soil, the density of the undergrowth, and the geological formation, hence one frequently finds a very old deposit covered by only about six inches of diluvium in a region where scant vegetation exists, whereas a comparatively recent aboriginal deposit, in a region with a heavy rainfall and dense woods, sometimes is covered by four feet or more of diluvium.</p> <p>That the Magen's Bay village-site was abandoned before the coming of the Spaniards to the West Indies is suggested by the fact that no objects of European origin were found. Had the tribe of which the remains were found existed on St Thomas during the period of the conquest of the West Indies, particularly during the conquest of Porto Rico by Ponce de León, it is more than probable that some evidence of barter or of other contact with the Spaniards would have been found, such as beads, hawk-bells,</p>
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<p>etc. From the condition of the skeletal remains found under the kitchen-middens at Magen's bay, the writer is of the opinion that the site was occupied several centuries before the Spanish invasion.</p> <p>Directly beneath the second and third layers of the deposits was found the surface of sand that existed before the Indian occupancy of the site. It was in this sand that nine pre-Columbian burials were found—seven of adults and two of children. It is far from improbable that a much larger number of burials may be found in the vicinity of the kitchen-midden and that the remains buried in the kitchen-midden itself represented but a small number of the inhabitants of the village-site. With three exceptions the burials were accompanied with at least one pottery vessel.</p> <p>We quote the following from Dr Fewkes regarding burial customs in the Lesser Antilles:</p> <p>“As skeletons sometimes occur in these sites, reference to burial customs may be mentioned here. The ancient Antilleans buried their dead</p>	
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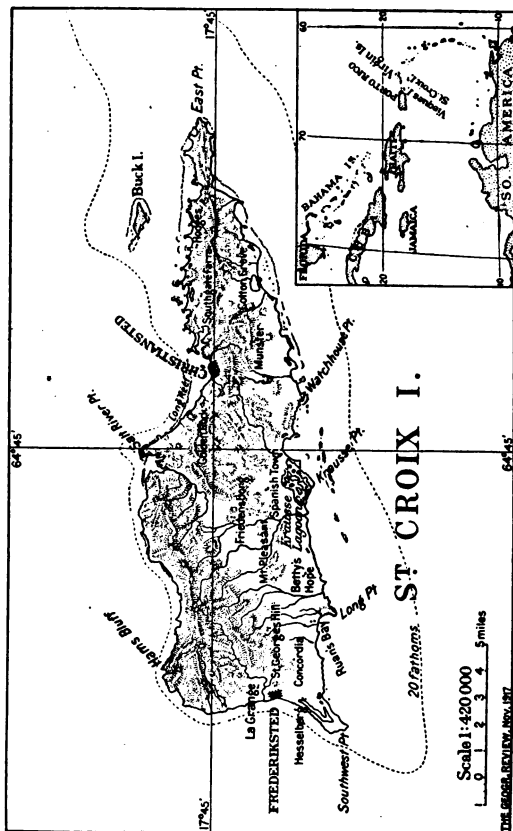
40	VIRGIN ISLANDS
	<p>in a contracted (embryonic) posture, often in the floors of the houses. . . . It was customary to deposit mortuary offerings in the graves, which accounts for the pottery and other objects found by the author in the Balliceaux cemetery." ¹⁰</p> <p>Two burials were found by our expedition in the Magen's Bay middens in which the bodies had been interred in a recumbent position, but the remains of the other seven burials had been placed in an embryonic posture, and after the dissolution of the flesh, the skeletons were found to have become a confused mass. The mortuary vessels were found close to the skeletons, but in no predetermined position. With five of the nine burials but one vessel was found; one burial was accompanied with three vessels, while three burials had no vessels whatsoever. It may be mentioned that no axes, amulets, or other artifacts save those of earthenware were found in the graves. Five of the burials were surrounded with conch-shells (<i>Strombus gigas</i>), which in each case seem to have been placed in a circle around the body.</p>
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SKULL IN SITU IN ABORIGINAL MOUND

ST THOMAS SITE	41
<p>It is worthy of mention that the burials appeared to be very old, and that the bones in consequence were so brittle and in such bad condition that their preservation was not possible. Two skulls, one of an adult and one of a child, were sufficiently hard to enable preservation, and of these the child's skull was sent to the National Museum in Copenhagen.</p> <p>Two of the burials were found in the layer directly above the sand, and these appeared as if deposited at a date later than those found below the third layer. These two skeletons were in especially bad condition, owing to the moisture in the black earth and to the roots of the genip trees (pl. III). From the fact that the burials in the original sandy surface (the fourth layer) were covered and surrounded with more or less kitchen-midden débris, such as potsherds and ashes, and with black loam, etc., which evidently came from the upper layers, it is apparent that the burials were made after the occupancy of the village-site and that graves were dug in the site itself and</p>	
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	<p>filled with the surrounding soil and refuse.</p> <p>ABORIGINAL DEPOSITS ON ST CROIX</p> <p>The kitchen-middens at Salt river, on the island of St Croix, did not differ materially from the one at Magen's bay on St Thomas (pl. IV). Salt river in reality is more of a sea inlet than a river, and its water is salty and not potable. The mouth of the inlet is bordered by an extensive reef, with two channels, making an ideal shelter for the canoes of the natives. Furthermore, the fishing on the confines of this reef is said to be excellent, and there is no reason to believe that it may have been otherwise in aboriginal times. In addition, the mangrove trees with which the inlet is bordered are covered with the typical mangrove oysters (<i>Ostrea virginica</i>), and the waters north of Salt river abound in conchs (<i>Strombus gigas</i>).</p> <p>The village-site at Salt river was far more extensive than the Magen's Bay site, and there is every evidence that St</p>
I	INDIAN NOTES



THE ISLAND OF ST CROIX
(Courtesy of the American Geographical Society)

ST CROIX SITE	43
<p>Croix supported a far larger pre-Columbian population than did the island of St Thomas. The deposits are found in a semicircle around a small hill on the western bank of Salt river, at the mouth of the inlet, as well as on its crest. Some practically effaced ruins on the hilltop, and the remains of a foundation for a flag-pole, indicate that in post-Columbian times the hill may have been used for a battery.</p> <p>The deposits are found as far as the edge of the sea and extend thence around the hill to the bank of Salt river. In many places the kitchen-middens are of inconsiderable depth. The excavations were made in a ridge about 24 ft. wide, 120 ft. long, and 5 ft. in height, with sloping sides, extending north and south from the edge of the sea. A cross-section of this ridge shows a diluvial deposit from a foot to two and a half feet in thickness. Directly beneath this was a layer, two and a half feet thick, of the usual charcoal, ashes, potsherds, and stone objects, forming a compact mass</p>	
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with the original soil. About ninety-five per cent of the shells found in the kitchen-midden consisted of the mangrove oyster (*Ostrea virginica*), while the remainder were mostly large conch-shells (*Strombus gigas*), together with the species enumerated below:

SHELLS

<i>Triton tritonis.</i>	<i>Pleurodonte</i> , new sp.
<i>Arca deshayesii.</i>	<i>Spondylus.</i>
<i>Lucina tigrina.</i>	<i>Cypraea exanthema</i>
<i>Avicula obliqua.</i>	<i>Murex brevifrons.</i>
<i>Mytilus hamatus.</i>	<i>Turbinella muricata</i>
<i>Chione cancellata.</i>	<i>Fasciolaria tulipa.</i>
<i>Anomalocardia brasili-</i>	<i>Livona pica.</i>
<i>ana.</i>	<i>Cassis testiculus.</i>
<i>Cassis flammea.</i>	<i>Murex pomum.</i>

As in the case of the bones found on St Thomas, Dr Miller¹¹ identified the mammal remains and those of the reptiles, finding them to be the following:

MAMMALS

Isolobodon portoricensis Allen. Fifty-six specimens were found, representing about fifteen individuals.
Trichechus manatus (Linnaeus). Dr Miller re-

ST CROIX SITE	45
<p>ports that the atlas and axis of one seacow, and three fragments of ribs, probably not from the same individual as the vertebræ, were included in the material from St Croix.</p> <p style="text-align: center;">REPTILES</p> <p><i>Chelonia mydas</i> (Linnaeus). About two dozen fragments of the shells and limbs of sea turtles were found in the deposits.</p> <p style="text-align: center;">BIRDS</p> <p>The bird-bones from the Salt River deposits were identified by Mr Wetmore¹² and found to belong to the following:</p> <p><i>Puffinus</i> sp. Shearwater. <i>Sula piscator</i> (Linnaeus). Redfooted Booby. <i>Nyctanassa violacea</i> (Linnaeus). Yellow-crowned Night-heron. <i>Gallinula chloropus</i> (Linnaeus). Gallinule. <i>Nesotrochis debooyi</i> Wetmore, new genus and sp. (Family Rallidae). The remains of the rail found at Magen's bay on St Thomas were encountered in these deposits also. <i>Corvus leucognaphalus</i> Daudin. At the present time this crow is not found nearer than the forest regions of Mameyes in Porto Rico.</p> <p>Mr Barton A Bean identified the fish-bones as belonging to the following:</p>	
AND MONOGRAPHS	1

Lutjanus, Snapper. *Scarus*, Parrot Fish.
Sphyraena, Barracuda. *Diodon*, Porcupine Fish.
Caranx, Crevallé. Ray.
Epinephelus, Grouper.

Numerous claws of the ordinary West Indian land crab (*Cardisoma guanhumí*) were found in the deposits.



FIG. 3.—Excavation in the aboriginal mound at Salt river, St Croix.

Owing to the intensely hot sea-breezes to which the lands around the mouth of Salt river are exposed, the diluvial deposit covering the kitchen-midden was



BURIAL VESSEL IN SITU

PETROGLYPHS	47
<p>extremely hard. The method followed in excavating was first to remove the aboriginal deposit under the diluvium and to then break down the overhanging shelf of earth (fig. 3). By these means the artifacts in the lower layers were removed without breakage. The sloping contour of the ridge, mentioned above, may be seen in the illustration referred to.</p> <p>A number of burials were found in the kitchen-middens at Salt river. The same method of interring the dead was practised as at the Magen's Bay site. By reason of the richness of the soil and its dampness, there was no possibility of preserving the skeletal material. As at Magen's bay, a number of burials were accompanied with pottery vessels, one of which is illustrated in pl. v.</p> <p>PETROGLYPHS OF ST JOHN AND OF CONGO CAY</p> <p>On the southern coast of the island of St John is an inlet named Reef bay on modern charts. This inlet may be seen also on older charts under the names Kip</p>	
AND MONOGRAPHS	1

48	VIRGIN ISLANDS
	<p>bay and Rif bay, but the appellation in common use is Reef bay, and it probably originated from the fact that this body of water is bordered by a coral reef. In former days the Reef Bay estate seems to have been of considerable importance as a sugar factory, but with the abolition of slavery and the decline in price of sugar, the estate suffered a serious decline, as did numerous other sugar plantations on the island.</p> <p>The writer is indebted to Mrs L. Marsh, present owner of the Reef Bay estate, and to her son, Mr E. Marsh, for permission to make photographs of the property, and special thanks are due Mr Marsh for his courtesy in acting as guide to the writer during his visit to the estate.</p> <p>Following the road between Lamesure, another bay on the southern coast of St John, situated more easterly than Reef bay, one views from a considerable distance the waterfalls under which the rock-carvings are found. The falls lie between the ridges of two hills, and in reality consist of two cataracts, the upper one al-</p>
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PETROGLYPHS	49
<p>most 60 ft. high, and the lower, under which the carvings are found, 45 ft. in height. As the crow flies the falls are not more than a mile and a quarter from the sea.</p> <p>In order to visit the site, it is necessary to follow the dry bed of a stream and then to cut one's way through a somewhat dense thicket. Before the hurricane of October 9, 1916, a foot-path followed the watercourse, hence the ascent to the falls was far easier than it is today.</p> <p>The lower fall is not of considerable volume in ordinary times, but during heavy rains the quantity of water that passes over the rocks must be quite large. It appears that in the present times, even during extended periods of drought, the falls are active, therefore it may be said that in Indian days, when the island was more heavily wooded than it is now, they never ceased.</p> <p>The lower waterfall discharges into a pool about 5 ft. deep and 12 ft. in diameter, which in turn empties into a second pool about seven feet lower. This lat-</p>	
AND MONOGRAPHS	1

50	VIRGIN ISLANDS
	<p>ter pool, in which the water is quite tranquil, is about 6½ ft. deep, 14 ft. wide, and 9 ft. broad. The water, filtered during its long course through the hills, is excellent for drinking purposes, and doubtless the Indians visiting the southern coast of St John must have come here for their supply.</p> <p>It is on the rocks surrounding the lower pool that the petroglyphs are found. Fig. 4 illustrates the carvings on the upper part of the large rock above this pool, which are not very remarkable. The figure at the extreme left is 19 in. long, while its largest circle is 10 in. in diameter. This glyph probably represents a conventionalized human figure. The size of the other etchings shown in this illustration may be determined from the dimensions of the one described. Another conventionalized human figure is shown at the middle of the photograph, directly above which may be seen (one of them rather faintly) two human faces, each outlined by a circle, with two pits for the eyes and a line for the mouth. The sig-</p>
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nificance of the intricate figure between the two conventionalized human heads is not known, and the same may be said



FIG. 4.—Petroglyphs on a large rock above the second pool.

of the carving at the extreme right-hand side of the illustration.

On the surface of the lower part of the same rock, shown in fig. 5, there are other carvings, and unless the Indians

AND MONOGRAPHS

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stood in the pool while making them, they must have been produced while the workers lay prone upon the rock. The presence of the line of pits is noteworthy, especially as it is directly above the nor-



FIG. 5.—Petroglyphs on the lower part of the large rock above the second pool.

mal water-line of the pool, which it almost parallels. At the extreme left of the photograph we find the usual conventional face, consisting of a circle, two pits, and a line. A similar carving may be seen a little to the right and somewhat

PETROGLYPHS	53
<p>higher, directly under which is a carving of the same character, excepting that the eyes are shown somewhat more elaborately by pits surrounded by semicircular lines. The large figure above, beneath the bush, cannot be explained. Under this device, a little to the right, are two scroll-like carvings which more than likely were designed to represent two pairs of human eyes. To the right of these is a conventionalized human figure, the large circle outlining the face, with inner lines for eyes and mouth, the four lines under the circle representing arms and legs. Above this carving, to the right, is what probably was another human figure, of which the lines representing the left hand, arms, and legs have been obliterated by the elements. In the picture writings at the extreme right, conventionalized eyes are again represented. In order to afford an idea of the size of these carvings, it may be said that the distance from the human face at the extreme left side of the picture to the carvings on the extreme right is 10 ft.,</p>	
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	<p data-bbox="356 293 961 402">4 in. The distance from the top of the large figure below the bush to the water-line is 2 ft., 3 in.</p> <p data-bbox="356 407 961 477">Only three figures are found on the rocks at the western side of the pool under</p>  <p data-bbox="356 992 961 1016">FIG. 6.—Petroglyphs on western side of the lower pool.</p> <p data-bbox="356 1053 961 1276">the second waterfall (fig. 6). The lower-most of these is a cross, the height of which is 17 in. and the width 11 in. It cannot be urged that the Indians inhabiting or visiting St John derived this conception from the Christian teachings of</p>
I	INDIAN NOTES

PETROGLYPHS	55
<p>the discoverers of the New World, as the petroglyphs probably existed many years before the coming of the Spaniards. This carving may have represented a conventional swastika symbol for designating the four cardinal points. The intricate carving directly above is beyond explanation, as is the one shown at the extreme left.</p> <p>All carvings at Reef bay are of about the same depth, namely, about a quarter of an inch. Other petroglyphs existed on these rocks in pre-Columbian times, but they have been almost, and in some cases entirely, obliterated by weathering.</p> <p>A series of small cays and islets lies between St Thomas and St John. One of the larger of these is called Lovango cay, and directly north of it is a rocky cay called Congo cay. The farm is owned in part by Mr Andersen, to whom the writer is indebted for permission to visit Congo cay, which is leased by the owner as a fishing station.</p> <p>Congo cay, with its single landing-place accessible only by rowboat, con-</p>	
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	<p>sists of a rocky ridge, in shape somewhat resembling the fin of a shark. The cay is practically devoid of vegetation, and its only advantage is that it seems to be the best station for line-fishing in the waters surrounding St Thomas and St John. There is no place on the cay that would have afforded facilities for beaching Indian canoes, hence such visitors as may have come to the cay must have been taken there by their tribesmen who were obliged to return later to carry them away.</p> <p>The petroglyphs of Congo cay are on the rock at the extreme eastern part (fig. 7, 8). It will be noted that the rock is almost horizontal and that it faces the islet known as Caravel rock, to the eastward. The cavity in the middle of the rock is not artificial, as some have supposed, but was caused by the decomposition of the stone. Several rocks on Congo cay have similar cavities.</p> <p>The petroglyphs here, shown in detail in fig. 8, are the only ones to be seen on Congo cay, and are singularly uninter-</p>
I	INDIAN NOTES

PETROGLYPHS

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esting. The figure at the upper left of the illustration represents a conventionalized human face. To the right of this may be seen an even cruder pecking of a human face, consisting simply of a circle,



FIG. 7.—Petroglyphs on flat boulder at eastern extremity of Congo cay

two pits, and a line. A little to the right of this are three circles with central pits. Judging by the arrangement of these latter circles, the two that are in conjunction probably represent the eyes and the third one the mouth, so that together the group

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was designed to represent a human face. In the lower center of the picture is a circle enclosing two conjoined circles with the usual pits. The largest circle in this case has an appendage of four lines and



FIG. 8.—Petroglyphs on boulder, and cavity in the stone.

a dot, and the entire carving probably represents a conventionalized human figure. Above and to the right of this are two concentric circles with a central pit.

As on Reef bay, it is likely that a much

PETROGLYPHS	59
<p>greater number of petroglyphs existed upon this rock in pre-Columbian times and that the action of wind and water has obliterated many of them. The carvings are about a quarter of an inch deep. As an indication of the size of the petroglyphs, it may be said that the width of the cavity shown in the illustration is 13 in., the depth $3\frac{1}{2}$ in., and the length 44 in. From the figure at the extreme left of fig. 8 to that on the extreme right is $31\frac{1}{2}$ in. The rock itself is about 35 ft. above sea level.</p> <p>Evidence was discovered on Lovango cay that it had been inhabited in pre-Columbian times, hence it is probable that members of the tribe came to Congo cay to fish. What appears to be an artificial mortar hole, about 5 in. in diameter and 4 in. deep, exists in one of the rocks near that on which the carvings are found. It is possible that this depression was used by the Indians for pounding the salt used for curing the fish caught during their stay on the cay.</p>	
AND MONOGRAPHS	1

60	VIRGIN ISLANDS
	<p data-bbox="547 331 798 358" style="text-align: center;">THE ARTIFACTS</p> <p data-bbox="370 376 982 565">As the artifacts found on St Thomas and St Croix pertain to the same culture, it is permissible to discuss them as a whole, regardless of the particular islands from which they respectively came.</p> <p data-bbox="570 604 772 630" style="text-align: center;">EARTHENWARE</p> <p data-bbox="570 651 772 677" style="text-align: center;">BURIAL VESSELS</p> <p data-bbox="370 695 974 841">Without exception, the vessels that accompanied the burials are severely plain, being devoid of painted, incised, or impressed decoration. The receptacles vary</p> <div data-bbox="370 857 964 1101" data-label="Image"> </div> <p data-bbox="370 1110 971 1138">FIG. 9.—Burial vessel from Magen's bay, St Thomas.</p> <p data-bbox="370 1172 974 1318">in size and form from a small, shallow, oval bowl (fig. 9), 9 in. long and $7\frac{1}{4}$ in. wide, to a large, deep vessel (fig. 10) of which the diameter at the rim is $14\frac{1}{2}$ in.</p>
I	INDIAN NOTES



a



b

BURIAL VESSELS FROM SALT RIVER, ST CROIX

BURIAL VESSELS

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Most of the mortuary vessels are globular, with large mouth, outcurving rim, and rounded or flattened base (pl. VI, *a*). Receptacles of this type vary in size from one with a rim diameter of $3\frac{1}{2}$ in. to another with a diameter of $8\frac{1}{2}$ in. In ad-



FIG. 10.—Burial vessel from Magen's bay, St Thomas.


dition to the mortuary vessels of the form mentioned, the graves revealed two with similar bodies but with mouths proportionately much smaller than in the specimens referred to. One of these, *in situ*, is shown in pl. v and in detail in pl. VI, *b*. The diameter of this vessel at the mouth is only $5\frac{1}{2}$ in., while that of

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1

62	VIRGIN ISLANDS
	<p>the body is $11\frac{3}{4}$ in. One shallow bowl was found, identical to the oval bowl illustrated in fig. 9, excepting that it is rounded instead of oval. Finally, there was recovered a vessel the bottom of which is rounded while the upper part curves regularly inward until it meets the slightly flaring rim (fig. 11).</p> <p>The shallow, oval bowl shown in fig. 9 is of well-fired, yellow clay; it stands $2\frac{1}{2}$ in. high and has an inside depth of $2\frac{1}{4}$ in., the thickness of the ware thus being a quarter of an inch. The rim has a slight inward curve. The diameters of the vessel are 9 in. and $7\frac{1}{2}$ in., and the rim at the longer ends is slightly higher than at the middle. This vessel was found on St Thomas in the Magen's Bay mound.</p> <p>The largest vessel found (fig. 10) has a maximum diameter of $17\frac{1}{2}$ in. and a rim diameter of $14\frac{1}{2}$ in.; it is $10\frac{1}{2}$ in. in height, and is of well-fired, dark-brown ware, three-eighths of an inch thick. This receptacle also is from the Magen's Bay mound.</p>
I	INDIAN NOTES

BURIAL VESSELS	63
<p>The vessel illustrated in pl. vi, <i>a</i>, from the Salt River deposits on St Croix, is an example of several found on both St Croix and St Thomas. The one here shown is $7\frac{3}{4}$ in. in height; it has a globular body with a diameter of $9\frac{1}{2}$ in., while its mouth, with a slightly outcurving rim, is $8\frac{1}{2}$ in. in diameter. The base is rounded. This vessel is of light-brown clay, well-fired, with a thickness of a quarter of an inch.</p> <p>The jar shown in pl. vi, <i>b</i>, resembles the type last described, excepting that the diameter of the mouth is small in proportion to that of the body. The rim is missing, but it was probably only half an inch high, and its lower part has a gentle outward curve. The bottom of the vessel is slightly flattened. This receptacle, which was found in the Salt River deposits on St Croix, is of hard-fired, reddish ware; it stands $7\frac{1}{4}$ in. high, and its walls are three-eighths of an inch thick. A similar vessel was found on St Thomas.</p> <p>Only one vessel of the type illustrated in fig. 11 was found. This jar has a</p>	
AND MONOGRAPHS	1

64	VIRGIN ISLANDS
	<p data-bbox="370 305 970 451">somewhat flattened base and stands $8\frac{1}{2}$ in. high. Midway of its height, at the maximum diameter of $10\frac{1}{2}$ in., the sides flare steadily inward to the rim, which is</p>  <p data-bbox="370 993 970 1026">FIG. 11.—Burial vessel from Magen's bay, St Thomas.</p> <p data-bbox="370 1058 970 1286">low and outcurving. The mouth has a diameter of 6 in. The vessel is reddish-brown in color, a quarter of an inch in thickness, and is fairly well fired. This jar is from the Magen's Bay deposits on St Thomas.</p>
I	INDIAN NOTES

EARTHENWARE	65
<p>OTHER POTTERY RECEPTACLES</p> <p>Pottery vessels from St Thomas and St Croix may be segregated into two classes: those having painted decoration and those having none. Of both varieties representative specimens have been selected for description. It would be impracticable to describe and illustrate the thousands of earthenware objects recovered from St Thomas and St Croix, but the comparatively few descriptions given may be taken as illustrative of the ceramic art of the two islands.</p> <p>Generally speaking, the plain pottery from the two islands is the crudest found in the Antilles. The elaborate incised and impressed decorations so common to the vessels from the Greater Antilles are entirely lacking here, as are the grotesque but well-modeled heads so typical of both the Greater and the Lesser Antilles. On the other hand, there are types that bear no resemblance to those of other West Indian islands.</p> <p>The boat-shaped vessel shown in fig. 12 is not unusual, for this form occurs on</p>	
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practically every island in the Caribbean, and the sherds of many similar recep-



FIG. 12.—Boat-shaped vessel from Magen's bay, St Thomas.



FIG. 13.—Shallow bowl from Magen's bay, St Thomas.

tacles are found on both St Thomas and St Croix. The vessel illustrated, which

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<p>has a flattish base, stands 4 in. high at the middle, while the ends, which are slightly pointed, reach a height of $5\frac{1}{2}$ in. The longer axis is 9 in. and the shorter $8\frac{1}{2}$ in. The ware is a quarter of an inch thick, and is of well-fired, dark-brown clay. This specimen was found in the Magen's Bay middens of St Thomas, and doubtless served for culinary purposes.</p> <p>Another simple and not uncommon West Indian type of bowl is shown in fig. 13. This little vessel, which has a flattish base, stands 3 in. high; it has a slightly incurving rim, a diameter at the mouth of $6\frac{1}{2}$ in., while that of the body is $7\frac{1}{4}$ in. The ware is three-eighths of an inch in thickness. The vessel is of poorly fired, reddish clay, and probably served as a food-bowl. Countless sherds of vessels of this type, in all sizes, were found in both the Magen's Bay and the Salt River deposits. The specimen illustrated is from the former locality.</p> <p>Small, shallow, rounded bowls, with plain rims or with two handle-like projections from the rim, such as are shown</p>	
AND MONOGRAPHS	1

in the specimen illustrated in fig. 14, were common in the Virgin Island deposits, but are not typical of other islands. The vessel illustrated stands $2\frac{1}{2}$ in. high, and has a diameter of $5\frac{1}{2}$ in.; it is of well-fired, light-brown clay, a

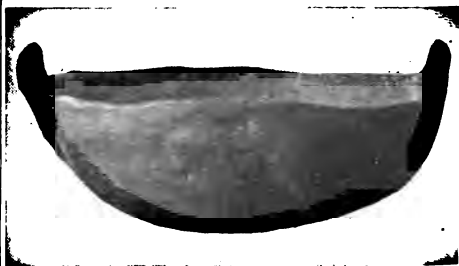


FIG. 14.—Shallow bowl with nodes, from Magen's bay, St Thomas.

quarter of an inch in thickness. This specimen was found in the Magen's Bay deposits of St Thomas.

The platter shown in fig. 15 is of a type not hitherto found in the Antilles. It resembles the familiar cassava griddles found on practically every island from the Bahamas to Trinidad, but is too small

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to have been used for the same purpose. Many sherds of platters of this kind were found on both St Thomas and St Croix.



FIG. 15.—Platter from Salt river, St Croix.

The one illustrated, from the Salt River deposits on the latter island, has a diameter of $8\frac{3}{4}$ in.; it is slightly concave, and



FIG. 16.—Boat-shaped vessel from Salt river, St Croix.

the ware, which is of well-fired, brown clay, is three-eighths of an inch thick.

The large vessel illustrated in fig. 16, from the Salt River deposits of St Croix,

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	<p>may also be considered representative of the culture of the Virgin Islands, as it is not found on any other islands of the West Indies, so far as known. Practically a third of the sherds of household vessels found on St Thomas and St Croix belong to receptacles of this character. It is boat-shaped, and the ends of the longer axis terminate in double nodes evidently modeled with the thumbs. The length of the vessel is 19 in., its width $15\frac{3}{4}$ in.; it stands 5 in. high. The ware is three-eighths of an inch thick, and is of fairly well fired, dark-brown clay. The rim is slightly incurving and the base is rounded.</p> <p>Sherds of small, globular vessels with loop handles, of which a typical example is shown in pl. VII, were also found in abundance on the Virgin Islands, but have not been noted heretofore on other islands of the Antilles. When complete, the vessel illustrated was globular in shape, with a slightly incurving rim. The diameter of the mouth is $3\frac{3}{4}$ in., and of the body $5\frac{3}{4}$ in. This little receptacle stands 5 in. high, is made of well-fired,</p>
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SHERD OF GLOBULAR BOWL WITH LOOP HANDLE,
FROM MAGEN'S BAY, ST THOMAS

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<p>reddish-brown clay, the walls being one-quarter of an inch thick. Only one handle is shown on the sherd illustrated, but there can be no doubt that the receptacle had been provided with a similar handle on the side now missing. The specimen illustrated was found in the Magen's Bay deposits of St Thomas.</p> <p>A fragment of a utensil was found in the Salt River deposits on St Croix which indicates that the aborigines of the Virgin Islands were familiar with the use of double vessels. This sherd (pl. VIII, <i>a</i>) shows two elliptical, flattish bases on the under side. A partition, one inch high with rounded edge, dividing the bowl in two parts, extends perpendicularly from the inside. It may be conjectured that the height of the bowl, when entire, did not exceed $1\frac{1}{2}$ in., while the diameter of the mouth was probably about $4\frac{1}{2}$ in.</p> <p>Another unusual sherd was found in the Salt River deposits of St Croix which recalls one collected by Mr M. R. Harrington in eastern Cuba and another by the writer in western Porto Rico. This</p>	
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	<p>fragment, shown in pl. VIII, <i>b</i>, evidently belonged to a round bowl provided with a double, parallel rim, possibly for the purpose of accommodating a convex lid, although no sherds of such a lid were found. The inner rim of the sherd, which is slightly incurving, follows the contour of the bowl, while the outer rim, which is slightly lower than the inner one and is separated therefrom by a space of $1\frac{1}{8}$ in., has an outward flare.</p> <p>Of vessels and sherds ornamented with incised or impressed designs, comparatively few were found in the Virgin Island deposits, nor do such specimens as are decorated in this manner compare favorably with the elaborately ornamented vessels from Porto Rico and Santo Domingo. The incised lines are invariably crude, and the patterns simple and poorly executed. The specimen illustrated in fig. 17 is typical of the examples found. This small, globular bowl, from the Salt River deposits of St Croix, has a diameter of $4\frac{1}{2}$ in. at the mouth, and stands $3\frac{1}{4}$ in. high. The ware is a quarter of an</p>
I	INDIAN NOTES



a. Potsherd of a double vessel.



b. Potsherd with a double rim.

SHERDS OF UNUSUAL VESSELS, FROM SALT RIVER,
ST CROIX

INCISED POTTERY

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inch thick, and is of poorly fired, dark-brown clay. The base is rounded. A shallow, incised line parallels the rim. At a distance of from half an inch to an inch below the upper incised line is a



FIG. 17.—Bowl with incised decoration, from Salt river, St Croix.

similar encircling line. At intervals these two lines are connected with vertical incised lines, but there is no symmetry in the spacing, and little attempt was made to produce a pattern. In one or two places a horizontal incised line is seen

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between the upper and the lower encircling lines.

Half of another small bowl with incised decoration is shown in fig. 18. The



FIG. 18.—Bowl with incised decoration, from Salt river, St Croix.

entire vessel had a maximum diameter of $6\frac{1}{4}$ in., with a diameter of $4\frac{3}{4}$ in. at the mouth. The rim has a decided inward curve; the base is flattened. This bowl

PAINTED POTTERY

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is of well-fired, yellow clay, and the ware is a quarter of an inch thick. The incised ornamentation is crude. A line encircles the rim, and from this other incised lines extend downward. The speci-



FIG. 19.—Vessel with red-painted decoration on outside, from Salt river, St Croix.

men was found in the Salt River deposits of St Croix.

A large proportion of the pottery found on the Virgin Islands is provided with painted decoration. With few exceptions, vessels so ornamented consist of

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either rounded or boat-shaped shallow bowls. Only a few examples of painted bowls of the type illustrated in fig. 19 were found. This fragment has an in-



FIG. 20.—Bowl with painted decoration, from Magen's bay, St Thomas.

curving rim, which in the entire vessel had a diameter of $7\frac{1}{2}$ in., while the maximum diameter of the body was $9\frac{1}{4}$ in. The bowl stands $3\frac{1}{4}$ in. high, and has a flattened base. The ware is a quarter of

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<p>an inch thick, and is of well-fired, brown clay. A red slip covers the outside and continues over the rim for a depth of $1\frac{1}{2}$ in. on the inside. This receptacle was found in the Salt River deposits of St Croix.</p> <p>Of the simpler forms of painted pottery from the Virgin Islands, the example illustrated in fig. 20 may be considered typical. This sherd is part of a round, very shallow dish, which had a diameter of about 13 in. and a height of only $2\frac{3}{4}$ in. The rim is rounded at the top and has a slight inward curve. The outside of this platter, which has a flattened base, is of the natural light-brown color of the clay from which it was fashioned, only the inside and the rim having been given the red slip. The ware is a quarter of an inch thick. This utensil was found in the Magen's Bay deposits of St Thomas.</p> <p>Of the same type as the foregoing, but with a more elaborate painted decoration, is the large, circular, shallow bowl illustrated in fig. 21. This utensil has a flat-</p>	
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tish base, a diameter of $18\frac{1}{2}$ in., and stands 5 in. high. From the rim, which is rounded and has been painted red, emanate two pairs of elongate, scroll-like



FIG. 21.—Bowl with painted decoration, from Magen's bay, St Thomas.

figures in red, disposed in such manner that each scroll turns in a direction opposite to that of the next. The surface of the inside of the bowl not covered with

PAINTED POTTERY	79
<p>the red design is painted black. The outside is in the original reddish-brown color of the clay of which it is made. The receptacle is well-fired and is three-eighths of an inch thick. This specimen was found in the Magen's Bay deposits of St Thomas, but hundreds of sherds of similar vessels were found on both islands.</p> <p>Still another type of vessel with painted decoration, found abundantly, is illustrated by the fragmentary example shown in fig. 22. This is a boat-shaped, shallow dish or platter, of which the opposite terminals are provided with double nodes. This specimen has a length of 12 in. and a width of $11\frac{1}{4}$ in.; it stands $3\frac{1}{4}$ in. high, and has a flattened base. The platter is fashioned from well-fired, reddish clay, three-eighths of an inch thick, and the outside retains its natural color. The rim of the bowl has been painted red, and the inside is covered with red discs, arranged in two circles between the rim and the red bottom. This specimen was found in the Salt River deposits on St Croix</p>	
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The Salt River deposits of St Croix produced one small bowl with painted decoration that differs somewhat from the vessels usually found. This speci-



FIG. 22.—Bowl with painted decoration, from Salt river, St Croix.


men, illustrated in fig. 23, is part of a deep, circular receptacle which evidently had been provided with two conventionalized animal-head handles, one of which

remains. The outside of the bowl, which has a rounded base, a diameter of $5\frac{1}{2}$ in., and stands $2\frac{1}{4}$ in. high, has been washed with a light-brown slip, while the inside



Fig. 23.—Small bowl with painted decoration, from Salt river, St Croix.

has been painted dark-brown, upon which a series of red bands radiate from the bottom toward the rim. The clay from which the vessel was made is fairly well

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	<p data-bbox="381 305 982 375">fired; the walls are a quarter of an inch thick.</p> <p data-bbox="381 380 982 492">A sherd typical of Porto Rican pottery is shown in fig. 24. This specimen was found in the Magen's Bay deposits of St</p>  <p data-bbox="381 1013 982 1068">FIG. 24.—Painted sherd with animal head, from Magen's bay, St Thomas.</p> <p data-bbox="381 1101 982 1292">Thomas, but there is no doubt that it was derived from Porto Rico. The sherd is part of a very large, shallow dish of which the terminals were provided with grotesque animal - head handles. The</p>
I	INDIAN NOTES

vessel was given a heavy, bright-red slip. It is not possible to determine the size of the bowl of which this is a part; the sherd itself is $11\frac{1}{2}$ in. long, hence the bowl, when entire, must have been of unusual size.



FIG. 25.—Painted sherd from Salt river, St Croix.

Another interesting sherd, illustrated in fig. 25, shows a striking resemblance to some of the painted ware found on the island of Trinidad, such as has been illustrated in a former paper.¹³ Not only does the decoration consist of white-painted lines applied on the red slip that covered the original ware, but the un-

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	<p>sually hard-fired clay resembles that of the painted ware from Trinidad. It is impossible to determine the shape of the vessel to which the sherd belonged, but it probably originated in Trinidad, as no similar specimens were recovered from the Salt River deposits of St Croix, nor are they known from contiguous islands.</p> <p style="text-align: center;">HANDLES</p> <p>Pottery heads, such as are found in all other West Indian islands, were almost totally absent from the deposits on St Thomas and St Croix. The few recovered bear no resemblance to the typical heads from Porto Rico and Santo Domingo or to those found on the Lesser Antilles. What undoubtedly was an attempt on the part of the potter to represent an animal gnawing at an object which it clutches between its paws, is shown in fig. 26. This handle, which has been luted to the rim of a vessel, was found in the Magen's Bay deposits on St Thomas.</p>
I	INDIAN NOTES

VESSEL HANDLES

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Vessels from the Virgin Islands seem occasionally to have been provided with loop handles of the type illustrated in



FIG. 26.—Handle with animal figure, from Magen's bay, St Thomas.

fig. 27. The larger of these two was found in the Magen's Bay midden on St Thomas, while the smaller came from the Salt River deposits on St Croix. The

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larger sherd is provided with an incised ridge which terminates in a circular head, of which the eyes are shown, where the handle joined the vessel to which it belonged. The smaller sherd is covered with a red slip on the decorated side, the reverse being undecorated and un-



FIG. 27.—Loop handles with heads. *a*, Magen's bay, St Thomas ; *b*, Salt river, St Croix.

painted. A notched ridge extends over the middle of the handle, and the edges also are notched. More of the head is shown than in the larger sherd; the eyes and nose are in high relief, while a banded line depicts the outline of the face.

SPINDLE-WHORLS

Numerous spindle-whorls were found in the deposits on St Thomas and St Croix, made of potsherds ground to the form of discs, with a perforation through

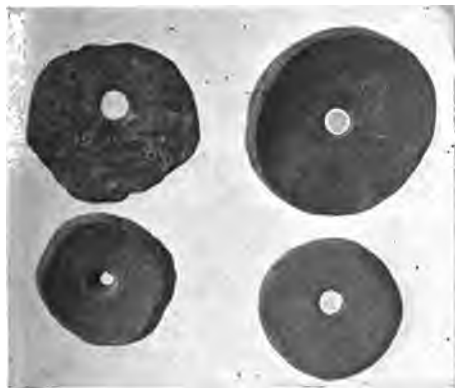


FIG. 28.—Spindle-whorls from Magen's bay, St Thomas.

the middle. Occasionally a painted sherd was used for making a disc, but most of the specimens found were fashioned from plain pottery fragments. The size of the perforation varies greatly, in some in-

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	<p>stances having a diameter of an eighth of an inch, while in other examples the diameter is as much as half an inch. Four specimens are shown in fig. 28, of which the largest has a diameter of 3 in. and the smallest a diameter of $2\frac{1}{8}$ in. All are from the Magen's Bay deposits on St Thomas. It may be stated that spindle-whorls have seldom been found in other West Indian islands, hence the abundance of specimens of this kind in the Virgin Islands is rather unusual and would indicate that the aborigines here wove textiles to a considerable extent.</p> <p style="text-align: center;">CASSAVA GRIDDLES</p> <p>Hundreds of fragments of cassava griddles were found on both St Croix and St Thomas. These in no way differ from like specimens found on other West Indian islands, such as have been described by the writer in previous papers.¹⁴ It is interesting to note the wide distribution of specimens of this type throughout the West Indies. Even where other artifacts obtained on the Vrgin Islands are</p>
I	INDIAN NOTES

so totally distinct in type from those of the adjoining areas, the aborigines of St Thomas and St Croix appear to have used the same kind of griddles for the preparation of their cassava bread as did the inhabitants of the other islands.

STONE OBJECTS

In general, the axes and celts found on St Thomas and St Croix are cruder than



FIG. 29.—Stone axe from St Croix.

those from other islands. The petaloid celts, of which, as well as of the axes, large numbers were acquired by purchase, lack the excellent finish so frequently


found on such objects from the Greater Antilles. The axes also are crudely fashioned, and generally resemble those from St Vincent, Grenada, and other of the smaller islands to the southward. A few axes were found which clearly belong to the Carib area of St Lucia and St Vincent. One of these, from St Croix, which measures $6\frac{1}{4}$ in. in length, is shown in fig. 29.



FIG. 30.—Three-pointed stones of coral. *a*, Salt river, St Croix; *b*, Magen's bay, St Thomas.

Two highly interesting objects made of coral stone (fig. 30) were found, one on St Thomas and one on St Croix. So far as known this is the first time that three-pointed stones made of coral have been

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<p>discovered in aboriginal deposits in the West Indies. The larger and better finished specimen was found in the Salt River deposits on St Croix, the other in the Magen's Bay deposits of St Thomas. The length of the St Croix specimen is $3\frac{1}{4}$ in. and the height $2\frac{3}{4}$ in., while the specimen from St Thomas has a length of $3\frac{3}{4}$ in. and a height of $1\frac{7}{8}$ in. These objects bear a typical resemblance to what Dr Fewkes has classified as the "fourth type" of three-pointed stones from Porto Rico.¹⁵ "This type," says Dr Fewkes, "includes those specimens that are destitute of face, head, or limbs, and without superficial ornamentation. To it belong some of the smallest known specimens, one of which is barely an inch in length." Not only do the St Croix and St Thomas examples have these characteristics, but the St Croix specimen possesses also to a high degree the other feature to which Dr Fewkes likewise calls attention, while the St Thomas example also has this, only not to such a marked extent. Dr Fewkes says: "One charac-</p>	
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	<p>teristic feature can not be passed without notice, as it seems to prove them identical in character with decorated three-pointed stones, to which they closely approximate in form. The apex of the conical projection tips slightly forward, or rather, when seen in profile, one side is more curved than the other." The St Croix specimen is well fashioned and smoothly finished; the under side is convex, as if designed to be fastened to another object. The St Thomas example has a flat under surface and either has not been well finished or shows the effects of weathering.</p>  <p>FIG. 31.—Coral stone pestle from Salt river, St Croix.</p> <p>Various other artifacts made of coral stone were found in both the St Thomas and the St Croix middens. Four pestles of this material were collected, of which</p>
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<p>one is illustrated in fig. 31. This pestle, which is 11 in. in length, was found in the deposits at Salt river on St Croix. A small, flat, coral mortar was also found.</p> <p>During his archeological work on St Croix, the writer was presented by Mr Hamilton Jackson, of Christiansted, with a collar-stone that was found on the island. This object, illustrated in fig. 32, is 17½ in. in length and 11½ in. wide; it is of the slender type and is "right-shouldered," according to the classification suggested by the late Professor Mason,¹⁶ as the rounded knob or projection with which it is provided would be on the right side if the object were placed over the head. The St Croix specimen is devoid of incised decoration, such as circles, triangles, or parallel lines, with which most of the slender collars from Porto Rico are provided. A rounded projection with an encircling ridge below is plainly shown on the outer edge below the curved shoulder. The diameter becomes gradually larger directly below the projection until it merges into a large panel,</p>	
AND MONOGRAPHS	1

the outside of which is flattened, while the inside conforms with the rounded surface of the entire inner face of the collar-stone. The outside of the panel is provided with an elongate, shallow depres-



FIG. 32.—Stone collar from St Croix.

sion with a rough surface, suggesting that it was hidden or covered when the object was in use. It is possible that an inlay of shell or bone was originally provided for this depression. The panel in which the depression is found is sur-

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<p>rounded by a slightly raised ridge, the inner surface of which is marked by an incised line; and another panel meets the right-hand panel at a decided angle. From the second panel, the end of which is indistinctly indicated by a lightly-raised encircling fillet, the shoulder of the collar-stone emerges and retains an even, circular form until it turns over and reaches the rounded projection previously described. The second panel has a rough outer surface and is slightly rounded; it overlaps the first panel at the junction of the two and is rounded off at this point, with an incised line to mark the division more clearly. As in the case of the potsherd illustrated in fig. 24, the writer is of the opinion that this collar-stone was not made on the island of St Croix, but in some manner was acquired from Porto Rico.</p> <p>OBJECTS OF BONE</p> <p>In the course of the excavations made in the deposits at Magen's bay on St Thomas, a swallow-stick—or "swallow-</p>	
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	<p>ing stick," as it is usually called—was found at a depth of about five feet. This object, illustrated in pl. ix, is $8\frac{1}{4}$ in. long, and is typical of the culture-area of Porto Rico and Santo Domingo. Until the investigations on St Thomas were conducted, no similar specimen had been found, excepting on the two islands mentioned. The object is slightly curved and flat at the rear, while the outer edge is rounded. The handle represents an extended human figure whose legs taper into the shaft of the stick itself. The arms are folded over the abdomen, with the fingers indicated by incised lines. Between the elbow and the body is found a perforation for the suspension of the object by means of a cord. The head is exceptionally well carved and has perforated ears, from which perhaps originally small shells were pendent. The eyes are represented by two oval shells, with round perforations, sunk into the bone from which the swallow-stick is made and are probably fastened with resinous gum. The nose is well modeled</p>
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TWO VIEWS OF A SWALLOW-STICK OF BONE, FROM MARGEN'S BAY, ST THOMAS

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<p>in relief. The mouth is represented by an inset of mother-of-pearl upon which incised lines indicate the teeth. The "stick" itself is made from a rib of the manati, or seacow, the natural curve of which is followed.</p> <p>According to Gomara, Román Pane, and other early historians, objects of this character were used by the priests in their ceremonies.¹⁷ The sticks were introduced into the throat to promote vomiting, it being the belief that it was necessary for the bodies of the priests to be purged before holding communion with the deities. Only one other bone swallow-stick from the West Indies is known to exist; it was collected by the late Archbishop Meriño of Santo Domingo on the island of Santo Domingo, and is now in the National Museum at Washington, where also may be seen three wooden swallow-sticks from the vicinity of Puerto Plata, Santo Domingo. The writer knows also of an object of this kind found in Porto Rico, made from the lip of a conch. The St Thomas specimen was</p>	
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	<p>also probably not manufactured on the island, but came from either Santo Domingo or Porto Rico.</p> <p>Another interesting specimen, illustrated in pl. x, was found in the deposits at Magen's bay on St Thomas. This spade-like object, which has a length of 11 in. and a width of 3½ in., is fashioned from the carapace of a large turtle. The end has been rounded and smoothed. It is not possible to state for what purpose the object was used. No like specimen is known from the West Indies</p> <p style="text-align: center;">BIBLIOGRAPHIC NOTES</p> <ol style="list-style-type: none"> 1. KNOX, Rev. JOHN P., Historical Account of St Thomas, West Indies, New York, 1852, p. 14 et seq. 2. MARTYR, PETER, Letter 147, dec. I, lib. II. 3. KNOX, op. cit., p. 18. 4. MARTYR, op. cit., dec. I, lib. II. 5. IRVING, WASHINGTON, Life and Voyages of Columbus, bk. v, chap. I. 6. FEWKES, J. WALTER, Aboriginal Culture in the Lesser Antilles, <i>Bulletin of the American Geographical Society</i>, vol. XLVI, Sept. 1914, p. 675.
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BONE OBJECT FROM MAGEN'S BAY, ST THOMAS

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